

**IN THE CLAIMS**

*Please amend the claims as follows:*

1. (Currently Amended) An optical transmission system, comprising:

(a) at least one directly modulated light source that generates and outputs a signal by direct modulation at an output end; and

(b) at least one optical fiber that:

(b1) constitutes a principal portion of an optical transmission line at at least one repeater section;

(b2) transmits a signal lightwave carrying at least one signal outputted by the at least one directly modulated light source;

(b3) has a chromatic dispersion that is negative at at least one wavelength of the signal lightwave; [[and]]

(b4) has a dispersion slope of at most  $0.05 \text{ ps/nm}^2/\text{km}$  in absolute value at the at least one wavelength[[,.]] ; and

(b5) has an effective area of at most  $50 \text{ } \mu\text{m}^2$  at the at least one wavelength,

wherein the at least one signal corresponding to the at least one wavelength has an  $\alpha$  parameter of at least 1.0 at the output end of the corresponding directly modulated light source and the signal lightwave carries at least three signals having a wavelength different from one another and has a wavelength band of not less than 40 nm.

2. (Cancelled)

3. (Original) An optical transmission system as defined by claim 1, wherein:

(a) the at least one wavelength is one wavelength, the wavelength being about 1550 nm;

and

(b) the at least one optical fiber has a zero-dispersion wavelength of at least 1610 nm.

4. (Original) An optical transmission system as defined by claim 1, wherein the at least one optical fiber has an effective area of at most  $60 \mu\text{m}^2$  at the at least one wavelength.

5. (Previously Presented) An optical transmission system as defined by claim 1, wherein the at least one optical fiber has a 2-m cutoff wavelength of at most 1600 nm measured on 2-m length portion of the at least one optical fiber.

6. (Original) An optical transmission system as defined by claim 1, wherein the at least one optical fiber has a chromatic dispersion of at least -16 ps/nm/km at the at least one wavelength.

7. (Original) An optical transmission system as defined by claim 1, wherein the at least one optical fiber has a chromatic dispersion of at least -16 ps/nm/km and at most 0 ps/nm/km at all the wavelengths of the signal lightwave.

8. (Cancelled)

9. (Previously Presented) An optical transmission system as defined by claim 1, wherein the at least one optical fiber has a non-linearity constant  $\gamma$  at the at least one wavelength and a power  $P_{in}$  of the signal lightwave to be inputted into the at least one optical fiber having the formula,  $\gamma P_{in} > 1.51 \times 10^{-6}/m$ .

10. (Currently Amended) An optical transmission system as defined by claim 1, wherein the total accumulated dispersion from the signal-transmitting end to the signal-receiving end is at least  $-80,000/B^2$  ps/nm and at most 0 ps/nm at ~~the or~~ each wavelength where  $B$  represents a bit rate in the unit of Gb/s of the at least one signal corresponding to the at least one wavelength.

11. (Original) An optical transmission system as defined by claim 1, wherein the at least one repeater section has a length of at least 75 km.

12. (Previously Presented) An optical transmission system as defined by claim 1, wherein the at least one optical fiber has a dispersion slope of at most  $0.03 \text{ ps/nm}^2/\text{km}$  in absolute value at the at least one wavelength.

13. (Previously Presented) An optical transmission system as defined by claim 1, wherein the at least one optical fiber has a dispersion slope of at most  $0.01 \text{ ps/nm}^2/\text{km}$  in absolute value at the at least one wavelength.

14. (Cancelled)